

REMARKS

Applicants respectfully request reconsideration of this application, and reconsideration of the Office Action dated August 8, 2005. Upon entry of this Amendment, claims 3, 4, and 8-12 will remain active and pending in this application. Claims 5-7 and 13-20 are canceled. The amendments to the claims are supported by the specification and original claims. No new matter is incorporated by this Amendment.

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Claim 13 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Claim 13 has been canceled by this Amendment, thereby rendering this rejection moot.

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Claims 3, 5, 6, 9, 10, 14, 18, and 19 are rejected under 35 U.S.C. § 102(e) as purportedly anticipated by Inaba et al. (U.S. Pat. No. 6,678,299). The Office Action asserts Inaba discloses each feature of these claims. Applicants respectfully traverse. Applicants note claims 5, 6, 14, 18, and 19 are canceled.

Independent claim 3 (from which claims 9 and 10 depend) recites a semiconductor optical device. The device includes a current blocking part disposed on the semiconductor substrate, and an optical waveguide buried in the blocking part. A “second conductivity type cladding layer” is defined as “on said optical waveguide and said current blocking part.” Further, claim 3 recites a trench with its bottom in contact with the current blocking part, and an insulating film present on the trench. Applicants’ arrangement of claim 3, with the recited second conductivity type cladding layer on the waveguide and the current blocking part, ensures that drive current flows into the waveguide while preventing leak

currents from flowing between the current blocking part and the insulating film. In Applicants' exemplary, preferred embodiment of Figure 4, the waveguide is shown at 35, the current blocking part at 37, and the "second conductivity layer" as second p-type cladding 19.

Inaba differs from the present invention in several ways. First, Inaba's buried layer completely covers the stripe shaped waveguide. Thus, Inaba does not have a "second conductivity type cladding layer disposed on said optical waveguide and said current blocking part" as required by claim 3. Without such second conductivity layer, Applicants explain, even if a positive drive voltage is applied to Inaba's anode electrode, no drive current will flow into the optical waveguide. Although the Office Action asserts that Inaba discloses a conducting layer 9 formed on a waveguide and a current blocking part, the layer 9 is a contact layer.

Second, Inaba, like Applicants, has a trench with a bottom in contact with a current blocking part. However, unlike Applicants' arrangement, Inaba is missing the insulating film on a surface of such trench.

For at least the foregoing reasons, Inaba fails to teach or fairly suggest each and every feature of claim 3 and its dependent claims. Thus Inaba cannot anticipate the claimed invention.

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Claims 3-20 are rejected under 35 U.S.C. § 103(a) as purportedly obvious based on Matsumoto et al. (U.S. Pat. No. 6,542,525) in view of Inaba et al. Applicants also traverse this rejection.

As discussed above, Inaba neither teaches nor fairly suggests an insulating film disposed on a surface of the trench. Accordingly, Inaba does not mention leak currents along a current path between the current blocking part and the insulating film. Thus Inaba simply does not recognize the problem to be solved by the present invention, or even Matsumoto's invention. For these reasons, Applicants respectfully urge that those of ordinary skill in the art would not have been motivated to have combined Inaba with Matsumoto in the way asserted in the Office Action.

Further, Matsumoto discloses both a modulation device (Fig. 2) and a laser device (Fig. 9). Inaba, however, discloses only a laser device. Applicants urge that it is very difficult to combine the structure of a modulator and a laser because their functions and operations are so different. Therefore, those of ordinary skill in the art would not have looked to Inaba, disclosing only a laser, in order to modify the balanced combination in Matsumoto of a laser and a modulator. For these reasons also, the asserted combination of Inaba and Matsumoto is urged as improper.

Further still, the Office Action concedes that Matsumoto does not disclose an Fe concentration for the blocking semiconductor layer. This feature thus is neither taught nor fairly suggested by the alleged combination of Matsumoto and Inaba because Inaba is not properly combinable with Matsumoto. Those of ordinary skill in the art, in considering the teachings of both patents, would not have been motivated to combine them as asserted in the Office Action.

In view of the above remarks, Applicants submit this rejection is overcome and requests it be withdrawn.

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Applicants respectfully submit that this Amendment and the above remarks obviate the outstanding rejections in this case, thereby placing the application in condition for immediate allowance. Allowance of this application is earnestly solicited.

If any fees under 37 C.F.R. §§1.16 or 1.17 are due in connection with this filing, please charge the fees to Deposit Account No. 02-4300; Order No. 033035.133.

If an extension of time under 37 C.F.R. §1.136 is necessary that is not accounted for herewith, such an extension is requested. The extension fee should be charged to Deposit Account No. 02-4300; Order No. 033035.133.

Respectfully submitted,
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